

Wind Power GeoPlanner™

Off-Air TV Analysis

Copenhagen Wind Farm, LLC



Prepared on Behalf of
OwnEnergy

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COMSEARCH
A CommScope Company

Table of Contents

1. Introduction	- 1 -
2. Summary of Results	- 1 -
3. Impact Assessment	- 5 -
4. Conclusions and Recommendations	- 6 -
5. Contact Us	- 6 -
6. Appendix A	- 7 -

1. Introduction

In this report, Comsearch analyzed the off-air television stations whose service could potentially be affected by the proposed Copenhagen Wind Farm project in Lewis County, New York. Off-air stations are television broadcasters that transmit signals that can be received directly on a television receiver from terrestrially located broadcast facilities. Comsearch examined the coverage of the off-air TV stations and the communities in the area that could potentially have degraded television reception because of the location of the proposed wind energy projects. Since there were two off-air TV Stations located in the project area-of-interest Comsearch also examined whether the coverage of these stations will be affected by the wind turbines once they are installed.

2. Summary of Results

The proposed wind energy project area and local communities are depicted in Figure 1, below.

To begin the analysis, Comsearch compiled all off-air television stations¹ within 150 kilometers of the wind project area of interest (AOI). Appendix A contains a tabular summary of these stations. A plot depicting their locations appears in Figure 2, below.

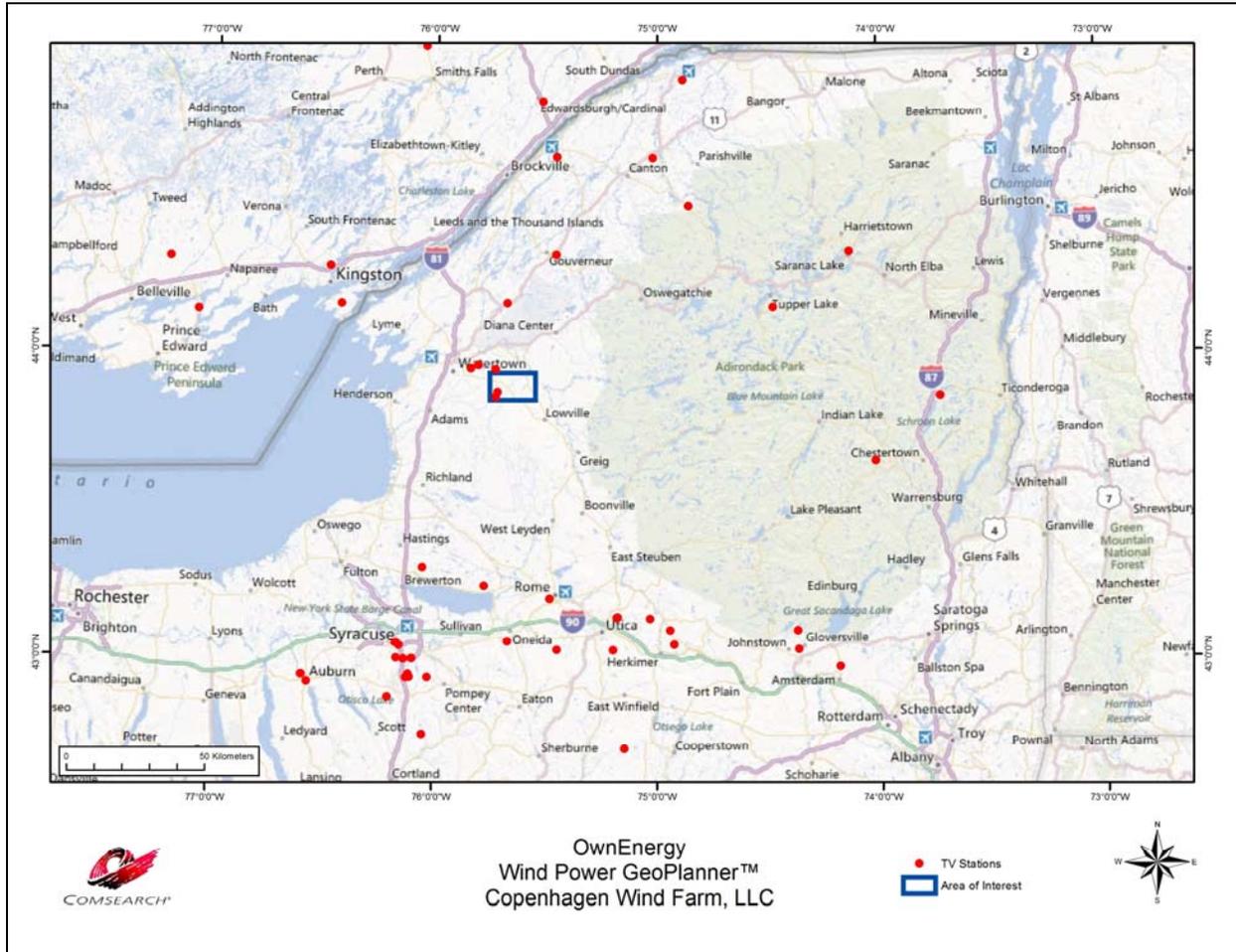


Figure 2: Plot of Off-Air TV Stations within 150 Kilometers of Project Area

TV stations at a distance of 65 kilometers or less are the most likely to provide off-air coverage to the project area and neighboring communities. These stations are listed in Tables 1 and 2, below, and a plot depicting these locations is provided in Figure 3. There are a total of twelve database records for stations within approximately 65 kilometers of the wind energy project. Of

¹ Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the TV station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

these stations, eight are currently licensed and operating, four of which are low-power stations or translators.

Translator stations are low-power stations that receive signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna. The four remaining operational stations broadcast at full power and are licensed under call signs WWTI, WPBS-DT, and WWNY-TV in the United States and CKWS-TV in Canada. WWTI and WPBS-DT are located within the project area on towers at a distance of 0.6 and 2.36 kilometers from the closest wind turbine, respectively.

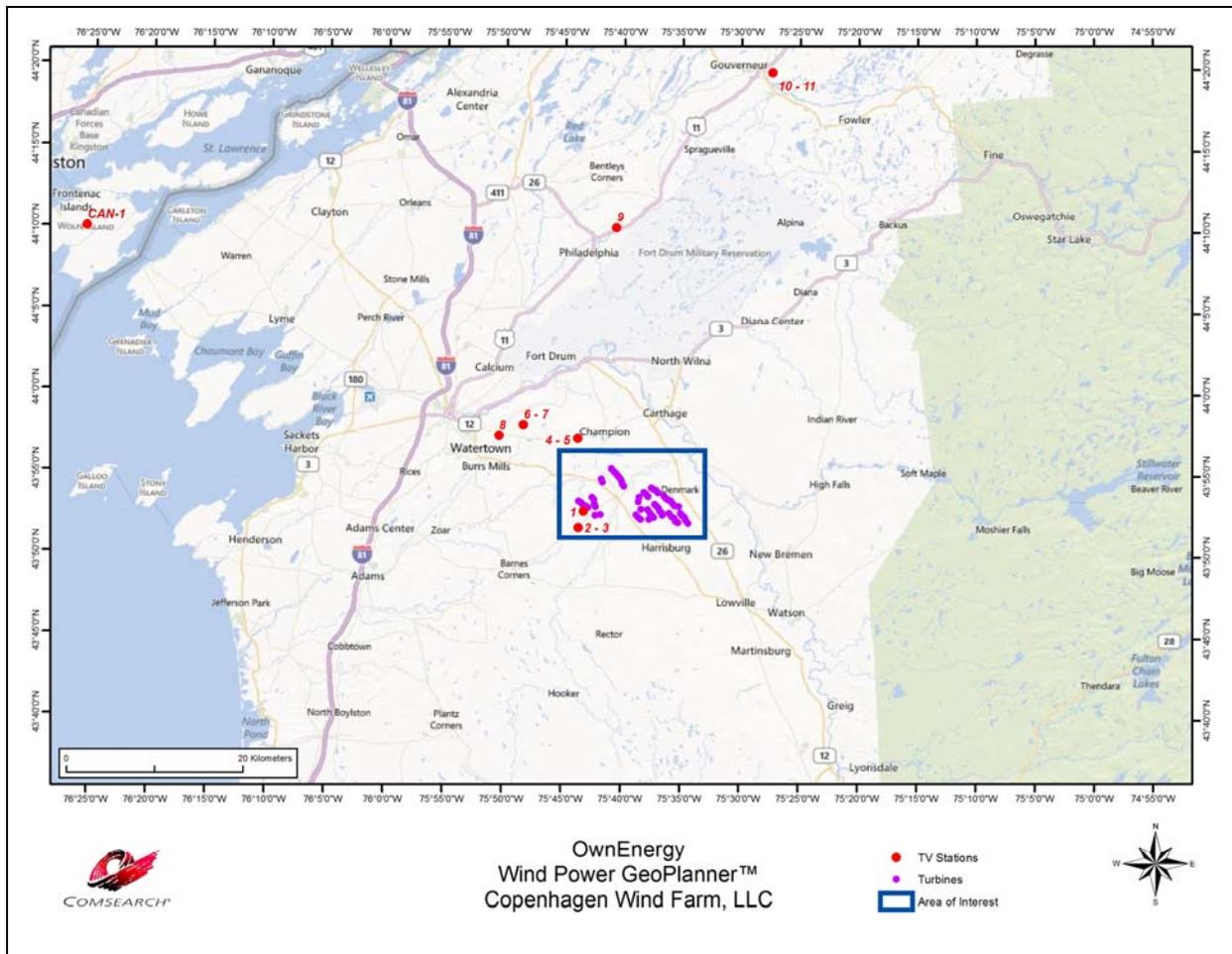


Figure 3: Plot of Off-Air TV Stations within 65 Kilometers of Project Area

ID	Call Sign	Status	Service ²	Channel	City	State	Distance to Nearest Turbine (km)
1	WWTI	LIC	DT	21	WATERTOWN	NY	0.60
2	WPBS-DT	LIC	DT	41	WATERTOWN	NY	2.36
3	WPBS-DT	CP	DT	41	WATERTOWN	NY	2.36
4	WWNY-TV	LIC	DT	7	CARTHAGE	NY	5.14
5	WNYF-CD	LIC	LD	35	WATERTOWN	NY	5.14
6	WTKJ-LP	LIC	TX	19	WATERTOWN	NY	10.70
7	WTKJ-LP	CP	LD	19	WATERTOWN	NY	10.70
8	WNYF-CA	LIC	CA	28	WATERTOWN	NY	11.69
9	NEW	APP	LD	45	WATERTOWN	NY	27.48
10	W09CV	LIC	TX	9	GOUVERNEUR	NY	48.65
11	W09CV	APP	LD	9	GOUVERNEUR	NY	48.65

Table 1: Off-Air TV Stations within 65 Kilometers of Project Area (U.S.)

ID	Call Sign	Status	Class ³	Channel	City	Province	Distance to Nearest Turbine (km)
CAN-1	CKWS-TV	OP	R	11	KINGSTON	ON	64.03

Table 2: Off-Air TV Stations within 65 Kilometers of Project Area (Canada)

3. Impact Assessment

The four full-power digital stations may have their reception disrupted in and around the Copenhagen Wind Farm project area, primarily in locations on the opposite side of the project area, relative to the station antennas. Communities and homes directly to the north and east of the project may have degraded reception of stations WWTI and WPBS, which broadcast from southwest of the project area, after the wind turbines are installed. Similarly, WWNY, low power stations WNYF and WTKJ, and the Canadian station CKWS-TV, which broadcast from

² Definitions of U.S. service and status codes:

DT – Digital television broadcast station

LD – Low power digital television broadcast station

TX – Translator station

CA – Class A analog television broadcast station

DC – Class A digital television broadcast station

LIC – Licensed and operational station

CP – Construction permit granted

CP MOD – Modification of construction permit

APP – Application for construction permit, not yet operational

³ Definitions of Canadian service and class codes:

R – Regular VHF television broadcast station

OP – Licensed and operational station

northwest of the project area, may have diminished reception in communities directly to the southeast.

However, based on the low number of full-power TV channels available in the immediate vicinity of the project area and recent surveys, it is unlikely that off-air television stations are the primary mode of television service for the local communities. TV cable service, where available, and direct broadcast satellite service (DBS) are more likely the dominant modes of service delivery.

To further examine the TV stations located inside the project area, the antenna heights of WWTI and WPBS were obtained from the FCC database. They were found to be 700 and 754 meters above mean sea level respectively. The dimensions of the wind turbines to be installed in this project are at a hub height of 96 meters and a blade diameter of 100 meters. Comsearch examined the planned locations of the wind turbines within the project area to determine the highest wind turbine blade tip taking into account the dimensions of the wind turbines and the ground elevation above mean sea level where the wind turbine will be installed. The highest wind turbine blade tip height was found to be 587.7 meters above mean sea level which is well below the height of the WWTI and WPBS antennas. This means that the transmitted signal of these two stations will pass well above the wind turbine blades and the overall coverage of the stations should be unaffected by the presence of the wind turbines.

4. Conclusions and Recommendations

Due to the overall height of the transmit antennas, the coverage of the two licensed TV stations in the project area should be unaffected by the wind turbines. Regarding the other TV stations providing off-air service to the local communities, both cable service and direct broadcast satellite service should be unaffected by the presence of the wind turbine facility and may be offered to those residents who can show that their off-air TV reception has been disrupted by the presence of the wind turbines after they are installed.

5. Contact Us

For questions or information regarding the Off-Air TV Analysis, please contact:

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6. Appendix A

ID	Call Sign	Status	Service ⁴	Channel	City	State	Distance to Nearest Turbine (km)
1	WWTI	LIC	DT	21	WATERTOWN	NY	0.60
2	WPBS-DT	LIC	DT	41	WATERTOWN	NY	2.36
3	WPBS-DT	CP	DT	41	WATERTOWN	NY	2.36
4	WWNY-TV	LIC	DT	7	CARTHAGE	NY	5.14
5	WNYF-CD	LIC	LD	35	WATERTOWN	NY	5.14
6	WTKJ-LP	LIC	TX	19	WATERTOWN	NY	10.70
7	WTKJ-LP	CP	LD	19	WATERTOWN	NY	10.70
8	WNYF-CA	LIC	CA	28	WATERTOWN	NY	11.69
9	NEW	APP	LD	45	WATERTOWN	NY	27.48
10	W09CV	LIC	TX	9	GOVERNEUR	NY	48.65
11	W09CV	APP	LD	9	GOVERNEUR	NY	48.65
12	WSPX-TV	LIC	DT	15	SYRACUSE	NY	69.28
13	WTKO-LP	CP	TX	32	SYLVAN BEACH	NY	70.17
14	WWDG-CA	APP	CA	6	ROME	NY	74.05
15	WWDG-CA	APP	CA	6	ROME	NY	74.05
16	WWDG-CA	LIC	CA	12	ROME	NY	74.05
17	W20CV	LIC	TX	20	OGDENSBURG	NY	82.74
18	W20CV	APP	LD	20	OGDENSBURG	NY	82.74
19	WPNY-LP	LIC	TX	11	UTICA	NY	86.47
20	WFXV	LIC	DT	27	UTICA	NY	86.47
21	WUTR	LIC	DT	30	UTICA	NY	86.47
22	W53AM	APP	LD	35	UTICA	NY	86.47
23	W53AM	CP	LD	42	UTICA	NY	86.47
24	W53AM	LIC	TX	53	UTICA	NY	86.47
25	W51CV	APP	LD	18	UTICA	NY	86.50
26	W51CV	LIC	TX	51	UTICA	NY	86.50
27	W51CV	CP	LD	51	UTICA	NY	86.50
28	W51CV	APP	TX	51	UTICA	NY	86.50

⁴ Definitions of service and status codes :

TV – Analog television broadcast station

DT – Digital television broadcast station

DS – Digital special temporary authority (STA)

LP – Low power analog television broadcast station

LD – Low power digital television broadcast station

CA – Class A analog television broadcast station

DC – Class A digital television broadcast station

TX – Translator station

LIC – Licensed and operational station

CP – Construction permit granted

CP MOD – Modification of construction permit

APP – Application for construction permit, not yet operational

STA – Special transmit authorization, usually granted by FCC for temporary operation

ID	Call Sign	Status	Service ⁴	Channel	City	State	Distance to Nearest Turbine (km)
29	W22DO-D	LIC	LD	22	UTICA	NY	86.57
30	WNYF-LD	LIC	LD	18	MASSENA	NY	89.06
31	WNPI-DT	LIC	DT	23	NORWOOD	NY	89.06
32	WNPI-DT	APP	DT	23	NORWOOD	NY	89.06
33	WCUL-CA	LIC	CA	13	ONEIDA	NY	89.44
34	WTKO-LP	LIC	TX	15	ONEIDA	NY	89.44
35	W46DY	LIC	TX	46	UTICA	NY	91.92
36	WFXV	APP	DT	27	UTICA	NY	92.71
37	W25AT-D	LIC	LD	25	TUPPER LAKE	NY	93.80
38	NEW	APP	LD	26	POTSDAM	NY	95.80
39	WVVC-LD	APP	LD	28	UTICA	NY	97.20
40	WVVC-LD	LIC	LD	33	UTICA	NY	97.20
41	WMBO-LP	LIC	TX	6	WESTVALE	NY	98.21
42	WMBO-LP	CP	TX	6	WESTVALE	NY	98.21
43	WONO-CA	LIC	CA	11	SYRACUSE	NY	98.21
44	WBLZ-LP	LIC	TX	13	SYRACUSE	NY	98.21
45	WSTQ-LP	LIC	TX	14	SYRACUSE	NY	98.21
46	WTVU-LP	LIC	CA	22	SYRACUSE	NY	98.21
47	WTVU-LP	CP MOD	DC	22	SYRACUSE	NY	98.21
48	WTVU-LP	APP	DC	22	SYRACUSE	NY	98.21
49	NEW	APP	LD	34	SYRACUSE	NY	98.21
50	WOBX-LP	LIC	TX	35	SYRACUSE	NY	98.21
51	WHSU-CA	LIC	CA	51	SYRACUSE	NY	98.21
52	WHSU-CA	CP	DC	51	SYRACUSE	NY	98.21
53	W42EB-D	CP	TX	31	SYRACUSE	NY	98.60
54	W42EB-D	APP	LD	42	SYRACUSE	NY	98.60
55	W42EB-D	LIC	LD	42	SYRACUSE	NY	98.60
56	WKTV	LIC	DT	29	UTICA	NY	99.25
57	WIXT-CA	LIC	CA	40	DEWITT	NY	101.54
58	WIXT-CA	CP	DC	40	DEWITT	NY	101.54
59	WNDR-LP	LIC	TX	49	SYRACUSE	NY	102.66
60	WNDR-LP	CP	LD	49	SYRACUSE	NY	102.66
61	W07BA	LIC	TX	7	SYRACUSE	NY	103.21
62	W04AE	LIC	TX	4	HERKIMER	NY	104.41
63	WSYR-TV	LIC	DT	17	SYRACUSE	NY	106.60
64	WTVH	LIC	DT	47	SYRACUSE	NY	107.40
65	WDSS-LD	APP	LD	38	SYRACUSE	NY	108.27
66	WDSS-LD	APP	LD	38	SYRACUSE	NY	108.28
67	WDSS-LD	LIC	LD	38	SYRACUSE	NY	108.28
68	WCNY-TV	LIC	DT	25	SYRACUSE	NY	108.71
69	WSTM-TV	LIC	DT	24	SYRACUSE	NY	108.72
70	WSYT	LIC	DT	19	SYRACUSE	NY	117.63

ID	Call Sign	Status	Service ⁴	Channel	City	State	Distance to Nearest Turbine (km)
71	WNYS-TV	LIC	DT	44	SYRACUSE	NY	117.63
72	WNNY-LD	CP	LD	31	AUBURN	NY	125.02
73	WNNY-LP	LIC	TX	6	AUBURN	NY	125.06
74	DW20BA	LIC	TX	20	MASSENA	NY	125.83
75	W48AO	LIC	TX	48	AUBURN	NY	126.04
76	WNMN	CP MOD	DT	40	SARANAC LAKE	NY	127.04
77	WNMN	APP	DT	40	SARANAC LAKE	NY	127.04
78	WNYI	CP MOD	DT	20	ITHACA	NY	127.20
79	WNYI	LIC	DT	20	ITHACA	NY	127.20
80	W07BH	LIC	TX	7	NORTH CREEK	NY	127.64
81	W09AZ	LIC	TX	9	NORTH CREEK	NY	127.64
82	W11AW	LIC	TX	11	NORTH CREEK	NY	127.64
83	DWFNY-CA	LIC	TX	49	GLOVERSVILLE	NY	129.17
84	WFNY-CD	LIC	DC	48	GLOVERSVILLE	NY	129.26
85	WFNY-CD	LIC	DC	48	GLOVERSVILLE	NY	129.26
86	W31BP	LIC	TX	31	BURLINGTON	NY	132.77
87	W21CP-D	LIC	LD	21	GLOVERSVILLE	NY	134.03
88	W07BI	LIC	TX	7	SCHROON LAKE	NY	148.76
89	W09BB	LIC	TX	9	SCHROON LAKE	NY	148.76
90	WYPX-TV	LIC	DT	50	AMSTERDAM	NY	149.41

Table A: Off-Air TV Stations within 150 Kilometers of Project Area (U.S.)

ID	Call Sign	Status	Class ⁵	Channel	City	Province	Distance to Nearest Turbine (km)
CAN-1	CKWS-TV	OP	R	11	KINGSTON	ON	64.03
CAN-2	CBLFT-14	OP	C	32	KINGSTON	ON	74.88
CAN-3	CICO-TV-38	OP	C	38	KINGSTON	ON	74.88
CAN-4	CKWS-TV-2	OP	A	26	PRESCOTT	ON	101.77
CAN-5	CJOH-TV-6	OP	R	6	DESERONTO	ON	111.69
CAN-6	CKWS-TV-3	OP	A	36	SMITHS FALLS	ON	124.54
CAN-7	CBLFT-13	OP	C	15	BELLEVILLE	ON	127.42
CAN-8	CICO-DT-53	OP	R	26	BELLEVILLE	ON	127.42
CAN-9	CITY-DT-3	OP	R	17	OTTAWA	ON	144.06
CAN-10	CHCH-TV-1	OP	R	11	OTTAWA	ON	144.06
CAN-11	CFMT-DT-2	OP	C	27	OTTAWA	ON	144.06
CAN-12	CFMT-DT-2(2)	AU	R	27	OTTAWA	ON	144.06
CAN-13	CJMT-DT-2	OP	R	20	OTTAWA	ON	144.06
CAN-14	CITS-DT-1	OP	R	42	OTTAWA	ON	144.06
CAN-15	CHRO-DT-43	OP	R	43	OTTAWA	ON	144.06
CAN-16	CHCH-DT-1	AU	R	22	OTTAWA	ON	144.06

Table A-2: Off-Air TV Stations within 150 Kilometers of Project Area (Canada)

⁵ Definitions of class codes:

R – Regular VHF Television Broadcast Station
 S – Super-power VHF Television Broadcast Station
 LP – Low Power Television Broadcast Station
 VU – Digital Class VU Broadcast Station
 VL – Digital Class VL Broadcast Station
 A – Class A Television Broadcast Station
 B – Class B Television Broadcast Station
 C – Class C Television Broadcast Station
 D – Class D Television Broadcast Station